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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/700,872	11/04/2003	Kabi P. Padhi	03-SIN-094	6611

7590 03/05/2008
Lisa K. Jorgenson
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Carrollton, TX 75006

EXAMINER

MONIKANG, GEORGE C

ART UNIT	PAPER NUMBER
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2615

MAIL DATE	DELIVERY MODE
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03/05/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/700,872

Applicant(s)

PADHI ET AL.

Examiner

George C. Monikang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 12/3/2007 have been fully considered but they are not persuasive.
2. With regards to applicant's argument that the Ballesty et al reference does not teach the cross correlator receiving two audio signals. The examiner maintains his stands. Ballesty discloses a correlator that received an original signal and a copy. The cross correlator compares the two signals. (Ballesty, abstract).

With regards to applicants arguments that Ballesty and Fischer et al fails to disclose cross correlating first and second audio signals, identifying from the cross correlated signal a plurality of parameters, and generating from the plurality of parameters an indicator of the extent to which the audio signals match, as recited in Claim 1, the examiner maintains his stand. The Ballesty and Fischer et al reference discloses cross correlating first and second audio signals (Ballesty, abstract); a plurality of parameters (Fischer et al, para 0048: signatures are a plurality of parameters); generating from the plurality of parameters an indicator of the extent to which the audio signals match (Fischer et al, para 0048: separation value). Examiner asserts that the applicant fails to claim the invention in a manner that best supports the arguments.

With regards to the double patenting, applicant has withdrawn his double patenting rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-4, 10-13 and 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ballesty et al, US Patent 6,944,510 B1, in view of Fischer et al, US Patent Pub. 2004/0093202 A1.

Re Claim 1, Ballesty et al discloses an apparatus, comprising: a cross correlator operable to receive a first audio signal and a second audio signal (abstract), the cross correlator also operable to cross correlate the first and second audio signals to produce a cross-correlated signal (abstract); but fails to disclose at least one parameter identifier operable to receive the cross-correlated signal and identify a plurality of parameters associated with at least one of the first and second audio signals using the cross-correlated signal (Fischer et al, para 0048: signatures are a plurality of parameters); and a score generator operable to receive the plurality of parameters and generate an

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indicator identifying an extent to which the first and second audio signals match (Fischer et al, para 0048: separation value). However Fischer et al does.

Taking the combined teachings of Ballesty et al and Fischer et al as a whole, one skilled in the art would have found it obvious to modify the apparatus, comprising: a cross correlator operable to receive a first audio signal and a second audio signal (abstract), the cross correlator also operable to cross correlate the first and second audio signals to produce a cross-correlated signal (abstract) of Ballesty et al with at least one parameter identifier operable to receive the cross-correlated signal and identify a plurality of parameters associated with at least one of the first and second audio signals using the cross-correlated signal (Fischer et al, para 0048: signatures are a plurality of parameters); and a score generator operable to receive the plurality of parameters and generate an indicator identifying an extent to which the first and second audio signals match (Fischer et al, para 0048: separation value) as taught in Fischer et al to reduce the computational load of the apparatus.

Re Claim 2, the combined teachings of Ballesty et al and Fischer et al disclose the apparatus of claim 1, wherein the at least one parameter identifier comprises: a correlation identifier operable to identify an amount of correlation between the first and second audio signals (Fischer et al, abstract); and a pitch variation identifier operable to identify a variation in pitch between the first and second audio signals (Fischer et al, fig. 5: 270; para 0059: the power variation is stored in db); but fails to disclose a delay identifier operable to identify a delay between the first and second audio signals (Fischer et al, para 0048).

Re Claim 3, the combined teachings of Ballesty et al and Fischer et al disclose the apparatus of claim 2, wherein: the delay identifier is operable to identify the delay by identifying a maximum value in the cross-correlated signal (*Fischer et al, para 0059*); the correlation identifier is operable to identify the amount of correlation by normalizing the cross-correlated signal (*Fischer et al, abstract: digitizing*); and the pitch variation identifier is operable to identify the variation in pitch by identifying a coincidental harmonic frequency using the cross-correlated signal (*Fischer et al, para 0057*).

Re Claim 4, the combined teachings of Ballesty et al and Fischer et al discloses the apparatus of claim 2, wherein the score generator is operable to generate the indicator by: generating a first score using the delay between the first and second audio signals and the amount of correlation between the first and second audio signals (*Fischer et al, abstract*); generating a second score using the variation in pitch between the first and second audio signals; and combining the first and second scores to produce a final score (*Fischer et al, para 0048*).

Claim 10 and 18 have been analyzed and rejected according to claim 1.

Claim 11 and 19 have been analyzed and rejected according to claim 2.

Claim 12 and 20 have been analyzed and rejected according to claim 3.

Claim 13 and 21 have been analyzed and rejected according to claim 4.

Claims 5-6, 14-15 and 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fischer et al, US Patent Pub. 2004/0093202 A1 and Ballesty et al,

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US Patent 6,944,510 B1 as applied to claim 1 above, in view of Asghar, US Patent 5,890,187, and further in view of Miyashiba et al, US Patent 5,774,851.

Re Claim 5, the combined teachings of Ballesty et al and Fischer et al disclose the apparatus of claim 1, wherein the first audio signal is associated with an input signal and the second audio signal is associated with a reference signal (abstract); but fails to disclose the following. However Asghar discloses comprising: a plurality of decimators operable to receive and decimate the input signal and the reference signal (fig. 3: 610; col. 4, lines 43-50). Miyashiba et al discloses a plurality of filters operable to filter at least one of the input signal, the reference signal, a decimated input signal, and a decimated reference signal (fig. 1: 2; col. 4, lines 8-15).

Taking the combined teachings of Ballesty et al, Fischer et al, Asghar and Miyashiba et al as a whole, one skilled in the art would have found it obvious to modify the apparatus of claim 1, wherein the first audio signal is associated with an input signal and the second audio signal is associated with a reference signal (Fischer et al, abstract) of Ballesty et al and Fischer et al with further comprising: a plurality of decimators operable to receive and decimate the input signal and the reference signal as taught in Asghar (fig. 3: 610; col. 4, lines 43-50); and a plurality of filters operable to filter at least one of the input signal, the reference signal, a decimated input signal, and a decimated reference signal as taught in Miyashiba et al (fig. 1: 2; col. 4, lines 8-15) so that noise could be cancelled from each audio signal individually to provide high quality sounds to be compressed and compared.

Re Claim 6, the combined teachings of Ballesty et al, Fischer et al, Asghar and Miyashiba et al disclose the apparatus of claim 5, wherein the plurality of filters comprise: a first anti-aliasing low pass filter operable to filter the input signal (Asghar, fig. 3: 610; col. 4, lines: 43-50: decimation of audio signals is a 2-step process that includes a low-pass anti-aliasing filter) a first of the decimators operable to decimate the filtered input signal (Asghar, fig. 3: 610; col. 4, lines 43-50); a second anti-aliasing low pass filter operable to filter the reference signal (Asghar, fig. 3: 610; col. 4, lines: 43-50: decimation of audio signals is a 2-step process that includes a low-pass anti-aliasing filter), a second of the decimators operable to decimate the filtered reference signal (Asghar, fig. 3: 610; col. 4, lines 43-50); a first band pass filter operable to filter the decimated input signal to produce the first audio signal (Miyashiba et al, fig. 1: 2; col. 4, lines 8-15); and a second band pass filter operable to filter the decimated reference signal to produce the second audio signal (Miyashiba et al, fig. 1: 2; col. 4, lines 8-15). Official notice is taken that both the concept and advantages of providing a plurality of decimators well known in the art. It would have been obvious to provide a plurality of decimators to compress each audio signal individually.

Claim 14 and 22 have been analyzed and rejected according to claim 5.

Claim 15 and 23 have been analyzed and rejected according to claim 6.

Claims 7, 16 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fischer et al, US Patent Pub. 2004/0093202 A1 and Ballesty et al, US Patent

6,944,510 B1 as applied to claim 1 above, in view of Miyashiba et al, US Patent 5,774,851.

Re Claim 7, Ballesty et al and Fischer et al disclose the apparatus of claim 1 wherein the score generator is operable to generate the indicator (abstract) but fails to disclose further comprising a voice activity detector operable to detect a voice in the input signal. However, Miyashiba et al does (abstract: speech recognition pattern).

Taking the combined teachings of Ballesty et al, Fischer et al and Miyashiba et al as a whole, one skilled in the art would have found it obvious to modify the apparatus of claim 1 wherein the score generator is operable to generate the indicator (Fischer et al, abstract) of Ballesty et al and Fischer et al with further comprising a voice activity detector operable to detect a voice in the input signal as taught in Miyashiba et al (abstract: speech recognition pattern) so that the apparatus could identify the speech patterns of the signals to determine the differences.

Claim 16 and 24 have been analyzed and rejected according to claim 7.

Claims 8, 17 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fischer et al, US Patent Pub. 2004/0093202 A1 and Ballesty et al, US Patent 6,944,510 B1 as applied to claim 1 above, in view of Miyasaka, US Patent 5,845,247.

Re Claim 8, Ballesty et al and Fischer et al discloses the apparatus of claim 1, but fails to disclose wherein: each of the first and second audio signals comprises a plurality of frames; and the cross correlator is operable to correlate one frame from the

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first audio signal and multiple frames from the second audio signal to produce the cross-correlated signal. However, Miyasaka does (col. 2, lines 8-16).

Taking the combined teachings of Ballesty et al, Fischer et al and Miyasaka as a whole, one skilled in the art would have found it obvious to modify the apparatus of Ballesty et al and Fischer et al with wherein: each of the first and second audio signals comprises a plurality of frames; and the cross correlator is operable to correlate one frame from the first audio signal and multiple frames from the second audio signal to produce the cross-correlated signal as taught in Miyasaka (col. 2, lines 8-16) so that the frame energies could be determined.

Re Claim 9, the combined teachings of Ballesty et al, Fischer et al and Miyasaka disclose the apparatus of claim 8, wherein the indicator identifies an extent to which the one frame from the first audio signal matches at least a portion of the multiple frames from the second audio signal (Fischer et al, abstract).

Claim 17 and 25 have been analyzed and rejected according to claim 8.

Conclusion

3. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

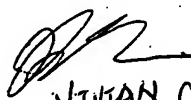
Any inquiry concerning this communication or earlier communications from the examiner should be directed to George C. Monikang whose telephone number is 571-270-1190. The examiner can normally be reached on M-F. alt Fri. Off 7:30am-5:00pm (est).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

George Monikang

2/28/2008


VIVIAN CHIN
SUPERVISORY PATENT EXAMINER